Channel Add/Drop Filter and Channel Monitor Employing Two-Dimensional Photonic Crystal

Abstract

The channel add/drop filter includes first and second 2D photonic crystals, and the first 2D photonic crystal includes a first waveguide and a first cavity, with the first cavity acting to take in light of a specific wavelength from the first waveguide and radiate it outside the first photonic crystal, and the second 2D photonic crystal includes a second waveguide with substantially the same characteristics as the first waveguide and a second cavity with substantially the same characteristics as the first cavity. The first and second waveguides are optically connected so that when the principal plane of the first 2D photonic crystal and the electric-field vector of the light within the first waveguide form an arbitrary angle $\square$, the principal plane of the second 2D photonic crystal and the electric-field vector of the light within the second waveguide form an angle of $\square + (\pi/2)$.